

REMARKS

Basis for new claim 25 may be found at page 5 lines 17-29. The basis for the amendments to claim 1 may be found in original claims 2 and 8.

In paragraph 2 of the Office Action, claim 24 stands rejected under 35 USC 112 second paragraph as being indefinite. The Examiner states that the term "metal oxyhydroxy complexes" as used in claim 24 and in the specification is inconsistent with its well-known meaning in the art. The Examiner suggests that the applicants should recite that "a" is greater than zero. The specification has been modified in accordance with the Examiner's suggestion. Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

In paragraph 4 of the Office Action, claims 1-23 stand rejected under 35 USC 103 as being unpatentable over Darsillo et al. (264). The reference is stated to disclose a recording medium having a glossy coating thereon and having first and second groups of particles of different sizes. The Examiner points out that the particles may be treated to form a shell of aluminosilicate. The Examiner urges that the particles of Darsillo et al. inherently disclose or make obvious the claimed invention. This rejection is respectfully traversed.

It is respectfully urged that Darsillo et al. does not make obvious the invention claimed. While Darsillo et al. does demonstrate an inkjet recording medium having large and small particles, and further does teach that said particles could be surface modified to produce cationic particles, Darsillo et al does not demonstrate the advantages (concurrent porosity, gloss and image fade resistance) of the instant invention.

The invention of Darsillo et al., in fact, teaches away from the current invention. For example, Darsillo et al. states col. 4, line 59 - 61 " the first group of particles is primarily responsible for liquid adsorption characteristics of the glossy coating" (by first group Darsillo et al. means larger particles). It is noted that good liquid adsorption is equivalent to, or arises from, the high porosity of the coating; Darsillo later clarifies this in Col. 9, line 14-17. Darsillo et al. further states col 6, line 66-68 and col. 7 line 1-4 ".... the particles in the second group which have a mean diameter of at least about 50 % smaller than the aggregates in the first group, improve the packing of the metal oxide aggregates

by filling in void space this provides a more densely packed glossy coating”. Thus, Darsillo describes the general problem well known in the art that large particles give highly porous coatings (good ink adsorption) but poorly glossy coatings, while small particles provide gloss, but have low porosity (poor ink adsorption). Porosity and gloss are therefore inversely related to one another, when one improves the other generally gets worse. The instant specification also points to this dilemma as on page 1 it is stated, “Large particles (greater than about 500 nm) result in coatings with high porosity but low gloss, whereas small particles (less than about 100 nm) result in low porosity but high gloss.”

The instant invention demonstrates surprising results in light of this teaching, as when particles that have a surface-modification providing image fade resistance are used to construct an image recording medium, highly porous and highly-glossy coatings are obtained at relatively high fractions of large particles. This is demonstrated in Table 1 of the specification at page 18.

Table 1

<u>Example</u>	<u>Percent Small Particles</u>	<u>Percent Large Particles</u>	<u>Shell</u>	<u>Percent Porosity</u>	<u>60° Gloss (%)</u>	<u>Percent Magenta Fade</u>	<u>Percent Cyan Fade</u>
C-1	100	0	None	42	40	40	11
C-2	89	11	None	45	31	48	40
C-3	77	23	None	48	29	26	50
C-4	66	34	None	52	12	28	50
C-5	55	45	None	55	6	19	47
C-6	44	56	None	60	5	17	60
C-7	32	68	None	65	9	12	54
C-8	100	0	Yes	33	4	3	0
C-9	89	11	Yes	37	7	0	0
I-1	77	23	Yes	42	16	0	6
I-2	66	34	Yes	39	29	1	18
I-3	55	45	Yes	48	29	2	15
I-4	44	56	Yes	52	33	4	25
I-5	32	68	Yes	58	31	4	11

For the comparison examples, the general trends taught in the art are observed, porosity increases and gloss decreases as the percentage of large particles increases, see C-1 through C-7. However, for the inventive examples wherein the particles are shelled with a material providing image fade resistance, surprisingly, gloss increases upon introduction of larger particles, and concurrent,

high-porosity, high-gloss and low-fade are achieved only in the inventive region , having a surprisingly high-fraction of large particles.

In Darsillo et al. glossy coatings are obtained only after calendering the coating, see Table 3 column 17. Calendering is a method applying pressure to the coating surface to make it smoother and hence to improve gloss. Calendering can be expensive and time consuming. Compare the results for the comparison example (3A) with that of example 3, the gloss is poor for both (unless calendering is used) and exhibits the usual trend of improved gloss for introduction of smaller particles.

Therefore, our invention is distinct from that of Darsillo et al since using the teachings of Darsillo one would not be expected to concurrently achieve high-porosity, high-gloss and image fade resistance. Further, image fade resistance would not have been an inherent property of the invention of Darsillo since Darsillo did not teach the use of the image fade resistant materials that are disclosed herein. We note here that alumiasilicate polymers of the instant invention claim 23 are structurally and chemically distinct from "aluminum chlorohydrate"- taught by Darsillo as an example of a cationic surface modifier. Therefore, it is respectfully requested that the rejection over Darsillo et al. be reconsidered and withdrawn.

In paragraphs 5-10 of the Office Action, claims 1 and 3-22 stand rejected over the U.S. Patents Gallo et al. 6,447,111 and Sadasivan 6,645,582 for various reasons. It is respectfully requested that these rejections be reconsidered and withdrawn as the independent claim 1 now incorporates previous claim 2 which was not rejected over these references.

Therefore, it is respect fully requested that the rejections under 35 USC 112, 35 USC 103 and double patenting be reconsidered and withdrawn and that an early Notice of Allowance be issued in this application.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Paul A. Leipold", is written over a horizontal line.

Attorney for Applicant(s)
Registration No. 26,664

Paul A. Leipold/rgd
Rochester, NY 14650
Telephone: 585-722-5023